

LISTING OF CLAIMS

This listing of claims will replace all prior versions and listings of claims in the application.

1. (Previously presented) Method for channel allocation in an ad-hoc radio communication system comprising devices having an equivalent communication architecture, the devices being gathered in several piconets, the devices of a same piconet being able to directly communicate with one another, a piconet coordinator (PNC) being defined among the devices forming each piconet, the radio communication between the devices being based on Code Division Multiple Access (CDMA) wherein a set of available CDMA codes is split into pre-defined disjointed subsets of CDMA codes (C_i), all the subsets of CDMA codes (C_i) being known by each device, and all the devices of a same piconet using CDMA codes in the same associated subset of codes (C_i) for communicating with one another, and in that for each new device added to the ad-hoc radio communication system, the method comprises:

each new device scanning its radio environment looking for at least one used subset of CDMA codes (C_i) which is associated with an existing piconet,

making the new device a piconet coordinator (PNC) of a new piconet and selecting a subset of CDMA codes (C_i) for use in the new piconet if no used subset or subsets of CDMA codes (C_i) are found by the scanning, or

joining the new device into an existing piconet among a set of available piconets found by the scanning to be using an existing subset of CDMA codes (C_i), and using said existing subset of CDMA codes (C_i) for the next communications between the new device and the other devices of the existing piconet that is joined.

2. (Currently amended) Method according to claim 1, further comprising defining a broadcast code (C_i^{bc}) in each subset of CDMA codes (C_i) permitting the piconet coordinator (PNC) to broadcast information towards all the devices of the associated piconet wherein the scanning of the radio environment by each new device is performed by looking for any CDMA broadcast code (C_i^{bc}) for determining that at least one ~~[[at]]~~ used subset of CDMA codes (C_i) which is associated with an existing piconet is present.

3. (Previously Presented) Method according to any one of the preceding claims, wherein, if the new device scanning its radio environment determines one or more subsets of CDMA codes (C_i) are being used by a set of existing piconets corresponding to each subset of CDMA codes (C_i) being used, the new device determines availability of each of the existing piconets corresponding to each subset of CDMA codes (C_i) being used based on applying an availability criteria.

4. (Previously presented) Method according to claim 3, wherein the availability criteria is based on the load of the piconet.

5. (Currently Amended) Method according to claim 2, wherein
if the new device scanning its radio environment determines one or more subsets of CDMA codes (C_i) are being used by a set of existing piconets corresponding to each subset of CDMA codes (C_i) being used, the new device determines availability of each of the existing piconets corresponding to each subset of CDMA codes (C_i) being used based on applying an availability criteria,

if none of the existing piconets corresponding to each subset of CDMA codes (C_i) being used is determined to meet the availability criteria, designating the new device as a

piconet coordinator (PNC) of a new piconet and selecting a not yet used subset of CDMA codes (C_i) for use in the new piconet,

if only a single piconet corresponding to each subset of CDMA codes (C_i) being used is determined to meet the availability criteria, adding the new device to said single piconet and uses the subset of CDMA codes (C_i) of said single piconet for the next communications, and

if more than one existing piconet corresponding to each subset of CDMA codes (C_i) being used is determined to meet the availability criteria, ordering the more than one existing piconet corresponding to each subset of CDMA codes (C_i) being used into a set of ordered available piconets according to a predetermined criteria and adding the new device to the first available piconet in the set of ordered available piconets.

6. (Previously presented) Method according to claim 5, wherein said criteria is radio quality.

7. (Previously presented) Method according claim 2, wherein adding the new device to an existing piconet includes the new device sending a request for attachment to the piconet coordinator (PNC) of the existing piconet being joined by the new device and on receiving said request for attachment, the piconet coordinator (PNC) of the existing piconet sending an indication of a CDMA reception code (C_i^j) among the subset of CDMA codes (C_i) associated to the existing piconet to the new device and the new device using the CDMA reception code (C_i^j) for reception of data.

8. (Currently Amended) Method according to claim 7, wherein said indication of the CDMA reception code (C_i^j) is a pointer of 8 bits as defined in 802.15.3 standard, said pointer indicating the CDMA reception code (C_i^j) as known by the new device.

9. (Previously presented) Method according to claim 7 wherein after a new device has joined a an existing piconet, the piconet coordinator (PNC) of the existing piconet sending an identification of the new device together with an indication of the reception code (C_i^j) to be used for reception by the new device to the other devices of the existing piconet.

10. (Previously presented) Method according to claim 7, wherein, when a given device is sending data with a given reception CDMA code (C_i^j) to an expected receiving device in the same piconet, the given device also sending attributes relating to the expected receiving device and the expected receiving device having the given reception CDMA code (C_i^j) processing the sent data only if the sent attributes relate to it.

11. (Previously presented) A particular device configured to be used in an ad-hoc radio communication system made up of the particular device and other devices having an equivalent communication architecture, the particular device and the other devices being configured to be gathered in several piconets, each device being able to directly communicate with other devices of a same piconet by implementing a Code Division Multiple Access (CDMA) transmission method, wherein the set of available codes is split into pre-defined disjointed subsets of CDMA codes (C_i) and each device comprises means in which all the subsets of CDMA codes (C_i) are stored, and each device is adapted to use the CDMA codes from a subset of CDMA codes (C_i) associated with a particular piconet for communicating with other devices of the particular piconet, and in that the particular device includes:

means for scanning the radio environment looking for at least one used subset of CDMA codes (C_i) associated with an existing piconet when the particular device is added in to the ad-hoc radio communication system, and

means for:

becoming a piconet coordinator (PNC) of a new piconet and for selecting a subset of CDMA codes (C_i) for the new piconet if no use of at least one of the subset of CDMA codes (C_i) is determined to be present as a result of the scan performed by the means for scanning, or

joining an existing piconet among a set of available piconets all of which are determined to be using at least one of the subset of CDMA codes (C_i) as a result of the scan performed by the means for scanning and for using said at least one used subset of CDMA codes for the next communications with other devices of the joined existing piconet.

12. (Previously presented) Ad-hoc radio communication system comprising devices having an equivalent communication architecture, the devices being gathered in several piconets, the devices of a same piconet all being able to directly communicate with one another, each piconet including a piconet coordinator (PNC), the multiple access scheme for the radio communication between the devices being a Code Division Multiple Access (CDMA) scheme, wherein the set of available codes is split into pre-defined disjointed subsets of CDMA codes (C_i), all the subsets of CDMA codes (C_i) being known by each device, and all the devices of a same piconet using CDMA codes in the same associated subset of CDMA codes (C_i) for communicating with one another, and in that each device includes:

means for scanning the radio environment looking for at least one used subset of CDMA codes (C_i) which is associated with an existing piconet when the device is added in the ad-hoc radio communication system, and means for:

becoming a piconet coordinator (PNC) of a new piconet and for selecting a subset of CDMA codes (C_i) for the new piconet if no existing piconet is determined to be using at least one of the subset of CDMA codes (C_i) as a result of the scan performed by the means for scanning, or

joining an existing piconet among a set of available piconets all of which are determined to be using at least one of the subset of CDMA codes (C_i) as a result of the scan performed by the means for scanning and for using said at least one used subset of CDMA codes for the next communications with other devices of the joined existing piconet.